

Remarks

Claims 1-19 are pending in the application and are rejected.

Claim rejections

Section 102

Claim 1-7, 11 and 16-19 were rejected under 35 USC 102(b) as being anticipated by Fuglevand et al. (US 6,096,449) ("Fuglevand"). The Applicant respectfully traverses. Fuglevand cannot support the asserted rejection for at least the reason that Fuglevand does not disclose "the predetermined operation pattern to apply at least one predetermined operating condition to change an operational state of the fuel cell ...," and detecting a change in an operational state of the fuel cell corresponding to the predetermined operation pattern as recited in independent claims 1 and 16.

The Examiner argues that "predetermined performance parameters" disclosed in Fuglevand at col. 8, lines 9-15 "are equivalent to the predetermined operation patterns claimed by the applicant." The Applicant respectfully disagrees. Fuglevand's system is for shunting current around non-performing cells; it is not a diagnostic system as is the present invention. For example, the "predetermined performance parameters" of Fuglevand do not *change* an operational state of the fuel cell as required by the present claims. Instead, they are a *measurement* of a state of fuel cell to determine whether to shunt around it. The Examiner concedes this point, noting that "the Fuglevand et al. reference discloses predetermined parameters that are determined by *an operational history* of the fuel cell ..." (emphasis added). An "operational history" by definition is a record of past operation, not a present operation to change an operational state.

Fuglevand could not be more clear regarding the above. See, for example, col. 8, lines 9-31:

"In the first and second operational conditions which are described herein, the predetermined performance parameters of the individual and serially electrically coupled fuel cells 10 comprise selected current and voltage outputs of the fuel cell 10. These **predetermined threshold performance parameters** may be determined by various means including but not limited to, experiment; **operational history** or electrical load, for example. Additionally, the predetermined performance parameters might include, in the

first condition, for example, where the **performance parameters** of the fuel cell are just merely or generally **declining over a given time interval**; are declining or in a range of less than about 0.4 volts; or are **declining or degrading**, generally speaking in relative relation to the performance parameters of other fuel cells 10 with which it is serially electrically coupled. This list of possible **parameters** is not all inclusive and many other physical and operational parameters could be monitored, and which would tend to suggest that a selected fuel cell is beginning to fail, and should be disconnected from the stack for repair or replacement if the shortcoming in performance is severe, or on the other hand subjected to increased shunting to determine if the fuel cell 10 can be recovered back to the predetermined performance parameters selected."

(Emphasis added.) In view of the above, the performance parameters of Fuglevand clearly have nothing to do with actively changing an operational state of a fuel cell for diagnosing the fuel cell. Instead, they are merely values representing a past performance, to determine whether or not to replace or shunt around failing cells.

Accordingly, claims 1 and 16 are allowable over Fuglevand, as are claims dependent thereon. Withdrawal of the asserted rejection is therefore respectfully requested.

Section 103

Claims 8-10 were rejected under 35 USC 103(a) as being unpatentable over Fuglevand in view of Bai et al. (US 6,620,538). Claims 12-14 were rejected under 35 USC 103(a) as being unpatentable over Fuglevand in view of Iwasaki (US 6,447,939). Claim 15 was rejected under 35 USC 103(a) as being unpatentable over Fuglevand in view of Iwasaki, and further in view of Yoshizawa et al. (US 2003/0003334). The Applicant respectfully traverses. The noted claims depend on claim 1 and are therefore allowable over Fuglevand for at least that reason. Bai et al., Iwasaki and Yoshizawa et al. do not cure the deficiencies in Fuglevand with respect to claim 1, and therefore the noted claims are further allowable over the cited combinations. Withdrawal of the asserted rejections is therefore respectfully requested.

Conclusion

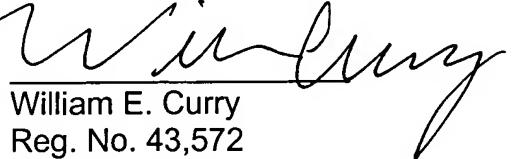
In light of the above discussion, Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4323 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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